IN THE CLAIMS:

1. (Previously Presented) A method for use in an equalization of a channel by means of an equalizer, wherein said channel uses a certain frequency band for a transfer of signals, said method comprising:

determining a channel response for at least three frequency points within said frequency band used by said channel; and

setting adjustable coefficients of said equalizer such that an equalizer response compensates the determined channel response at said at least three frequency points;

wherein said setting of adjustable coefficients comprises for an equalization of phase of said channel setting a complex coefficient as a phase rotator part of said equalizer, setting at least one coefficient of a non-real complex allpass filter part of said equalizer, and setting at least one coefficient of a real allpass filter part of said equalizer.

2. (Previously Presented) The method according to claim 1, wherein determining said channel response comprises determining a channel phase response and a channel amplitude response for said channel, and wherein said adjustable coefficients of said equalizer are set such that an equalizer amplitude response approaches an inverse of a determined channel amplitude response for all considered frequency points and that an equalizer phase response approaches a negative of a determined channel phase response for all considered frequency points.

3. (Previously Presented) The method according to claim 1, further comprising selecting a number of said at least three frequency points for said channel to correspond to a minimum number which can be expected to result in a sufficient channel equalization.

4. (Previously Presented) The method according to claim 3, wherein said number of said at least three frequency points is selected for said channel data block-wise based on frequency domain channel estimates for said channel.

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Previously presented) The method according to claim 1, wherein setting said adjustable coefficients comprises for an equalization of amplitude of said channel setting at least one coefficient of a symmetric 5-tap Finite Impulse Response filter part of said equalizer.

11. (Previously Presented) Use of the method according to claim 1 for a single channel of a single carrier system.

12. (Previously Presented) Use of the method according to claim 1 for each of a plurality of sub-channels of a filter bank based multicarrier system or of a transform based multicarrier system.

13. (Previously Presented) Use of the method according to claim 1 for each of a plurality of sub-channels of a filter bank based multiantenna system or of a transform based multiantenna system in a Multiple Input Multiple Output configuration.

14. (Previously Presented) Use of the method according to claim 1 for channels which are to be processed in an analysis-synthesis filter bank configuration.

15. (Previously Presented) An apparatus comprising:

at least one equalizer associated to a channel using a certain frequency band for a transfer of signals, which at least one equalizer comprises adjustable coefficients; and

a channel estimation component configured to determine for at least one channel to which said at least one equalizer is associated a channel response for at least three frequency points within a frequency band used by said at least one channel, and configured to set adjustable coefficients of said at least one equalizer such that an equalizer response compensates a determined channel response at said at least three frequency points;

wherein said at least one equalizer comprises for an equalization of phase of said at least one channel a phase rotator part with an adjustable complex coefficient which is configured to be set by said channel estimation component, a non-real complex allpass filter part with at least one coefficient which is configured to be set by said channel estimation component, and a real allpass filter part with at least one coefficient which is configured to be set by said channel estimation component; and

wherein at least one of said at least one equalizer and said channel estimation component is implemented at least partly in hardware.

16. (Previously Presented) The apparatus according to claim 15, wherein said channel estimation component is configured to determine as said channel response for said at least one channel a channel phase response and a channel amplitude response, and to set said coefficients of said equalizer such that an equalizer amplitude response approaches an inverse of a determined channel amplitude response for all considered frequency points and that an equalizer phase response approaches a negative of a determined channel phase response for all considered frequency points.

17. (Previously Presented) The apparatus according to claim 15, wherein said channel estimation component is further configured to select a number of said at least three frequency points for said at least one channel such that it corresponds to a minimum number which can be expected to result in a sufficient channel equalization.

18. (Previously Presented) The apparatus according to claim 17, wherein said channel estimation component is configured to select said number of said at least three frequency points for said at least one channel data block-wise based on frequency domain channel estimates for said at least one channel.

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Previously Presented) The apparatus according to claim 15, wherein said at least one equalizer comprises for an equalization of amplitude of said at least one channel a symmetric 5-tap Finite Impulse Response filter part with at least one coefficient which is configured to be set by said channel estimation component.

25. (Previously Presented) The apparatus according to claim 15, wherein said at least one equalizer is a single equalizer configured to equalize a single channel of a single carrier system.

26. (Previously Presented) The apparatus according to claim 15, wherein said at least one equalizer comprises a plurality of equalizers, each configured to equalize another one of a plurality of sub-channels of a filter bank based multicarrier system or of a transform based multicarrier system.

27. (Previously Presented) The apparatus according to claim 15, wherein said at least one equalizer comprises a plurality of equalizers, and wherein a respective matrix of equalizers is configured to equalize another one of a plurality of sub-channels of a filter bank based multiantenna system or of a transform based multiantenna system in a Multiple Input Multiple Output configuration.

28. (Previously Presented) The apparatus according to claim 15 comprising an analysis-synthesis filter bank, wherein said at least one equalizer comprises a plurality of equalizers, each configured to equalize another one of a plurality of sub-channels which are to be processed by said analysis-synthesis filter bank.

29. (Previously Presented) A signal processing system comprising a signal processing device with:

at least one equalizer associated to a channel using a certain frequency band for a transfer of signals, which at least one equalizer comprises adjustable coefficients; and

a channel estimation component configured to determine for at least one channel to which said at least one equalizer is associated a channel response for at least one frequency point within a frequency band used by said at least one channel, and configured to set adjustable coefficients of said at least one equalizer such that an equalizer response compensates optimally a determined channel response at said at least one selected frequency point;

wherein said at least one equalizer comprises for an equalization of phase of said at least one channel a phase rotator part with an adjustable complex coefficient

which is configured to be set by said channel estimation component, a non-real complex allpass filter part with at least one coefficient which is configured to be set by said channel estimation component, and a real allpass filter part with at least one coefficient which is configured to be set by said channel estimation component; and

wherein at least one of said at least one equalizer and said channel estimation component is implemented at least partly in hardware.

30. (Previously Presented) The signal processing system according to claim 29, wherein said channel estimation component is configured to determine as said channel response for said at least one channel a channel phase response and a channel amplitude response, and to set said coefficients of said equalizer such that an equalizer amplitude response approaches an inverse of a determined channel amplitude response for all considered frequency points and that an equalizer phase response approaches a negative of a determined channel phase response for all considered frequency points.

31. (Previously Presented) The signal processing system according to claim 29, wherein said channel estimation component is further configured to select a number of said at least three frequency points for said at least one channel such that it corresponds to a minimum number which can be expected to result in a sufficient channel equalization.

32. (Previously Presented) The signal processing system according to claim 31, wherein said channel estimation component is configured to select said number of said at least one frequency point for said at least one channel data block-wise based on frequency domain channel estimates for said at least one channel.

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Previously Presented) The signal processing system according to claim 29, wherein said at least one equalizer comprises for an equalization of amplitude of said at least one channel a symmetric 5-tap Finite Impulse Response filter part with at least one coefficient which is configured to be set by said channel estimation component.

39. (Previously Presented) The signal processing system according to claim 29, wherein said system is a single carrier system and wherein said at least one equalizer is a single equalizer configured to equalize a single channel.

40. (Previously Presented) The signal processing system according to claim 29, wherein said system is a filter bank based multicarrier system and wherein said at least one equalizer comprises a plurality of equalizers, each configured to equalize another one of a plurality of sub-channels of said filter bank based multicarrier system.

41. (Previously Presented) The signal processing system according to claim 29, wherein said system is a filter bank based or transform based multiantenna system in a Multiple Input Multiple Output configuration, wherein said at least one equalizer comprises a plurality of equalizers, and wherein a respective matrix of equalizers is configured to equalize another one of a plurality of sub-channels of said filter bank based or transform based multiantenna system.

42. (Previously Presented) The signal processing system according to claim 29, wherein said system is an analysis-synthesis filter bank system, wherein said at least one equalizer comprises a plurality of equalizers, each configured to equalize another one of a plurality of sub-channels which are to be processed by said analysis-synthesis filter bank system.

43. (Currently Amended) A software program product in which ~~A computer readable medium storing~~ a software code is stored as an equalizer for use in an equalization of a channel ~~by means of an equalizer is stored~~, wherein said channel uses a certain frequency band for a transfer of signals, said software code for execution when running in a signal processing device comprising said equalizer:

determining a channel response for at least three frequency points within said frequency band used by said channel; ~~and~~

setting at least one adjustable coefficient of said equalizer such that an equalizer response compensates the determined channel response at said at least three frequency [[points;]]points,

wherein said setting of adjustable coefficients comprises for an equalization of phase of said channel setting a complex coefficient as a phase rotator part of said equalizer, setting at least one coefficient of a non-real complex allpass filter part of said equalizer, and setting at least one coefficient of a real allpass filter part of said equalizer; and

selecting a number of said at least three frequency points for said channel to correspond to a minimum number which can be expected to result in a sufficient channel equalization, wherein said number of said at least three frequency points is selected for said channel data block-wise based on frequency domain channel estimates for said channel.